



***JOil sees transformation of the economics of Jatropha with biomass fuel cake and animal feed meal production***

- *Potential to double product revenue per hectare from Jatropha plantations, expanding Jatropha applications beyond biodiesel and biokerosene*

**SINGAPORE, 6 August 2012** -- JOil (S) Pte. Ltd., a scientific bioenergy crop developer of a new generation of Jatropha, sees the potential to double the product revenue per hectare from Jatropha plantations with biomass fuel cakes and animal feed meal. This can lead to a viable “Jatropha economy” and to large-scale commercial growing of the crop. At present, Jatropha is seen primarily as a renewable source for biodiesel and biokerosene.

“The product revenue per hectare for Jatropha plantations has the potential to double from the current estimate of US\$1,000+ per hectare per year to US\$2,000+ per hectare per year with biomass fuel cakes and animal feed meal. When this happens, the economics of Jatropha production will change dramatically and lead to better commercial viability of the plant,” says Dr Hong Yan, Chief Scientific Officer of JOil speaking at the International Conference on Next Generation Technologies for Bioenergy and Biomass Utilisation, held in Singapore.

He added, “While Jatropha oil has received the most attention as a renewable source of biodiesel and biokerosene, we must remember that Jatropha plants are also a source of lignin-cellulosic biomass as well as protein rich seed cake. The source for biomass comes from shed-off leaves, pruned branches and twigs, seed coat and shell and when made into cakes serve as biomass feedstock for biocharcoal, biogas, bioethanol and other value-adding products.

Jatropha kernel meal derived from the crushed seeds contains up to 60% of proteins with good balance of essential amino acids. As animal feed, it has been shown to be comparable or better as a source of protein than soybean meal after detoxification.

A typical Jatropha plantation produces about five tons of biomass per ha from Year 4 onwards and twice the amount of protein rich seed cake compared to crude Jatropha oil. Jatropha seed

cake is therefore a valuable commodity to farmers that will boost their earnings from growing the plant.

### **Overcoming the Problem of Toxicity**

Jatropha seed meal however contains anti-nutrients like curcin and cancer promoting phorbol ester. As a result, the protein-rich Jatropha seed meal cannot be currently used for animal feed purposes without processing to remove the toxins. There are several approaches of detoxification and JOil is in the process of developing its own proprietary technology that does not involve organic solvent.

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### **About Jatropha**

*Jatropha curcas*, also called physic nut, is a drought-resistant plant which has been used for years as a hedge plant to protect food crops from animals. Its seeds, when crushed, result in jatropha oil which can be processed to produce a high-quality biodiesel to be used to fuel airplanes, diesel cars, and stationery machines like generators. Since Jatropha can be grown on poor land and as a hedge for existing gardens and fields, it does not compete with land used for food crops, unlike edible oil and feedstock like soybean and palm oil. The Jatropha plant is native to Africa, Central America and the Caribbean.

### **About JOil (S) Pte. Ltd.**

Headquartered in Singapore, JOil is a joint venture company incorporated by Temasek Life Sciences Laboratory Limited, Tata Chemicals (through its wholly-owned subsidiary, Tata Chemicals Asia Pacific Pte Ltd), Toyota Tsusho Corporation and other investors in 2008. Its main business activities include the development, propagation and sale of elite Jatropha seedlings and improved genetically-modified seedlings for commercial cultivation as well as to engage in agronomy research and provision of agronomy advisory. It has operations in India, Indonesia, China, Kenya, Thailand and the Philippines. In 2011, JOil completed the acquisition of PT Monfori Nusantara, a leading tissue culture facility in Indonesia. JOil is an active member of Jatropha Working Group of Roundtable for Sustainable Biofuels, and is committed to ensuring sustainability.

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